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Two new Afrotropical species of *Lonchoptera* Meigen (Diptera: Lonchopteridae)

by

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ABSTRACT

Two new Afrotropical species of *Lonchoptera* Meigen 1803, are described, bringing the total for the region to six. Keys are provided for the identification of these species.

INTRODUCTION

The first described Afrotropical species of *Lonchoptera* Meigen, 1803, was *L. africana* Adams, 1905, from Kenya. This was followed by descriptions of *L. acinaris* Séguy, 1938, *L. transvaalensis* Stuckenberg, 1963 and *L. vesperis* Stuckenberg, 1963. Two new species, *L. rava* (Fig. 1) and *L. ugandensis*, are described below. These have been compared to material in the Natal Museum (NMSA) and The Natural History Museum, London (BMNH).

As far as can be established the male of *transvaalensis* remains unrecorded. *L. furcata* (Fallén, 1823), an almost cosmopolitan species, is unknown from the Afrotropical Region. Although Malloch (1932) claimed to have recorded a male *furcata* from Umtali, Stuckenberg (1963) recognised and described this specimen as *africana*.

The new keys provided below include *furcata*, since it remains possible that this species will be found in Africa. The male specimen examined was from 'Aberdeenshire: Braemar. 19–30.vii.1938. R. L. Coe. B. M. 1938–511' and the female was labelled 'From grasses by stream. Montenegro: Kolasin. 5–9.vi.1958. Jugoslavia. R. L. Coe. Brit. Mus. 1958–417'. Both specimens are in BMNH. Specimens of *acinaris* were not examined and the details for the key have been taken from Stuckenberg (1963); the male genitalia of this species are unmistakable and it cannot be confused with other Afrotropical species. The reader is referred to the paper by Stuckenberg (1963) for figures of the terminalia of all but the two new species described and illustrated below.

METHODS

Generally morphological terminology follows that of McAlpine (1981) and Peterson (1987). Abbreviations for the positioning of the leg macrosetae follows the inset in McAlpine's Fig 2.1, with the addition of a posterior dorsal row of macrosetae (*pdr*) (Fig. 13) set among, and virtually indistinguishable from, the denser patch of distal setae on the hind tibia. The terms 'proximal' and 'distal' pertain to the first and last fifth of the leg segment respectively, while 'median' pertains to the three fifths between proximal and distal.

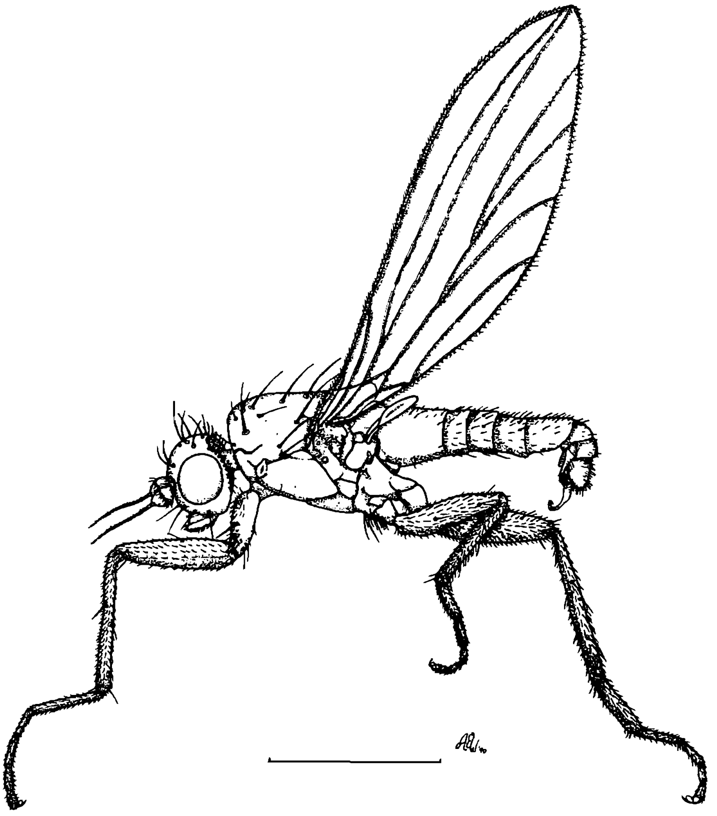


Fig. 1. *Lonchoptera rava* sp. n., holotype male. Scale = 1 mm.

Tibial macrosetae appear to be identical for males and females of any one species, and are figured for all six Afrotropical species for comparative purposes. Some macrosetae, such as the proximal dorsals, are fine and difficult to distinguish from the general setation of the tibia. For this reason these have not been used in species delimitation.

The ratios of wing venation used by Stuckenberg (1963), have not been adopted here, since the ratios for *rava* sp. n. fall within the range for *transvaalensis* and *vesperis*. Stuckenberg's phrase 'the sclerite (*vtb*) between the gonopods' has been replaced with the term paramere. Numbering of the abdominal tergites and sternites follows Peterson (1987).

TAXONOMY

Lonchoptera Meigen, 1803

Musidora Meigen, 1800, *Nouv. Class.* p. 30. Suppressed by I.C.Z.N., 1963 Opinion 678.
Lonchoptera Meigen, 1803, *Mag. Ins. (Illiger)***2**: 272. Type species: *Lonchoptera lutea* Panzer, 1809, by subsequent monotypy (Panzer 1809, *Fav. insec. germ. initia oder Devt. Ins.* **108**: 20).
Dipsa Fallén, 1810, *Sp. Ent. Nov. Dipt* p. 20.
Lonchopteryx Stephens, 1829, *Nom. Brit. Ins.* p. 63.

Keys to the Afrotropical *Lonchoptera* species

Males

The male of *L. transvaalensis* remains unknown. Specimens of *L. acinaris* were not examined, but since the males of this species are distinctive, details for the key were taken from Stuckenberg (1963). * – indicates a species not from the Afrotropical Region.

1. Genitalia distinct with elongate aedeagus folded on itself and sinuously recurved, apically pointed; gonopod with few setae, strongly tapering distally, ending with a row of very short setae and a short stout terminal spine .... **acinaris** Séguy, 1938.

— Genitalia without elongate aedeagus, if sinuously recurved and pointed (*furcata*), then gonopod without terminal spine; gonopod not strongly tapering 2

2. Hind tibia having only one dorsal distal macroseta (Fig. 7–*pd*) .... **transvaalensis** Stuckenberg, 1963

— Hind tibia having two dorsal distal macrosetae (*ad* & *d*, *ad* & *pd* or *d* & *pd*) 3

3. Mid tibia with ventral macrosetae distally only (Fig. 15–*av* & *pv*); aedeagus pointed apically, downcurved; gonopod with slight subapical ventral bulge bearing two setae, four or more long setae proximal to this (Figs 20–21) .... **rava** sp. n.

— Mid tibia with ventral macrosetae both medially and distally; aedeagus apically bilobed, if pointed then recurved (*furcata*); gonopod without slight ventral bulge, if present then gonopod bent away from cerci and/or setation different 4

4. Fore tibia with dorsal (*d*) and ventral (*v*) distal macrosetae, but no *ad, pd, av* or *pv* macrosetae (Figs 8, 11); aedeagus bilobed and downcurved 5

— Fore tibia with posteroventral (*pv*) macrosetae (Figs 2, 7); aedeagus bilobed or pointed but recurved 6

5. Tips of aedeagal lobes pointed; gonopod apically rounded, with prominent protrusion on upper margin near distal third, with short stout ventral setae; paramere apically rounded, half to two-thirds the gonopod length .... **africana** Adams, 1905

— Tips of aedeagal lobes rounded; gonopod tapered only at the extreme apex, ending in a terminal thickening perpendicular to the long axis and bearing a long terminal spine, setae medially positioned and long; parameres bilobed, as long as gonopod .... **vesperis** Stuckenberg, 1963

6. Fore tibia with only one median dorsal (*d*) macroseta and one median posterodorsal (*pd*) macroseta (Fig. 17); hind tibia with a dorsal (*d*) macroseta between second (more distal) median *ad* and distal dorsal (*d*) macroseta (Fig. 19); aedeagus recurved and terminally bilobed; gonopod curved back away from cerci, with ventral bulge before terminal quarter followed by a row of three setae, setae proximal to bulge in a group; paramere very short, about one quarter gonopod length, terminally pointed (Figs 24–25) .... **ugandensis** sp. n.

— Fore tibia with two median anterodorsal (*ad*) macrosetae and one median posterodorsal (*pd*) macroseta (Fig. 2); hind tibia lacking dorsal macroseta (*d*) between median and distal dorsal (*d*) macrosetae (Fig. 4); aedeagus recurved and terminally pointed, elongate and folded back on itself (see couplet 1.); gonopod curved toward cerci, slightly tapered, round ended with a row of terminal setae; paramere round ended almost as long as gonopod .... **furcata** Fallén, 1823*

Females

L. acinaris Séguy 1938 excluded. *—indicates a species not from the Afrotropical Region.

1. Hind tibia having only one distal dorsal macroseta (Fig. 7–*pd*); sternite 8 larger than sternite 7 .... **transvaalensis** Stuckenberg, 1963

— Hind tibia with two distal dorsal macrosetae (*ad* & *d*, *ad* & *pd* or *d* & *pd*); sternite 8 smaller than sternite 7 2

2. Mid tibia with ventral macrosetae distally only (Fig. 15–*av* & *pv*); tergite 8 half the width of tergite 7; sternite 8 half length of sternite 7 (Figs 22–23) .... **rava** sp. n.

— Mid tibia with ventral macrosetae both medially and distally; tergite 8 one third or less than width of tergite 7; sternite 8 more than half length of sternite 7 (Figs 26–27) 3

3. Fore tibia with dorsal and ventral distal macrosetae, but no *ad, pd, av* or *pv* macrosetae (Figs 8, 11) 4

— Fore tibia with posteroventral (*pv*) macrosetae (Figs 2, 17) 5

4. Sternite 8 reduced and narrowed medially ..... **vesperis** Stuckenberg, 1963

— Sternite 8 large, almost elliptic, not narrow medially . **africana** Adams, 1905

5. Fore tibia with only one median dorsal (*d*) macroseta and one median posterodorsal (*pd*) macroseta (Fig. 17); hind tibia with a dorsal (*d*) macroseta between the second (more distal) median *ad* and the distal dorsal (*d*) macroseta (Fig. 19) .... **ugandensis** sp. n.

— Fore tibia with two median anterodorsal (*ad*) macrosetae and one median posterodorsal (*pd*) macroseta (Fig. 2); hind tibia lacking the dorsal (*d*) macroseta between the median and distal dorsal macrosetae (Fig. 4) .... **furcata** Fallén, 1823*

Lonchoptera rava sp. n.

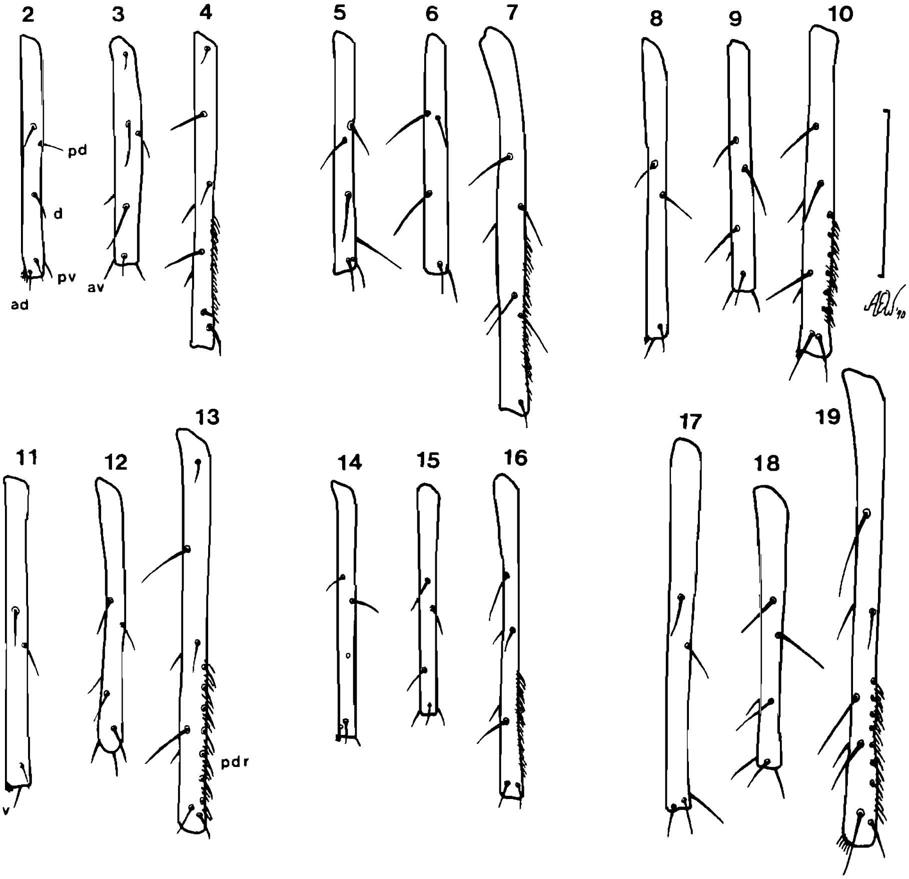
Figs 1, 14–16, 20–23

Etymology: rava (L.) from *ravus* meaning grey, since this species is distinctly darker than other Afrotropical *Lonchoptera.*

Description: Based on holotype ♂ (South Africa, Howick).

Body length: 2,48 mm (antennal base to abdominal apex).
Wing length: 2,87 mm.

Head: Pale buff, darkened to brown from frontal seta across vertex. Antennae almost spherical, covered with fine silver pruinescence, arista finely plumose. Seg-

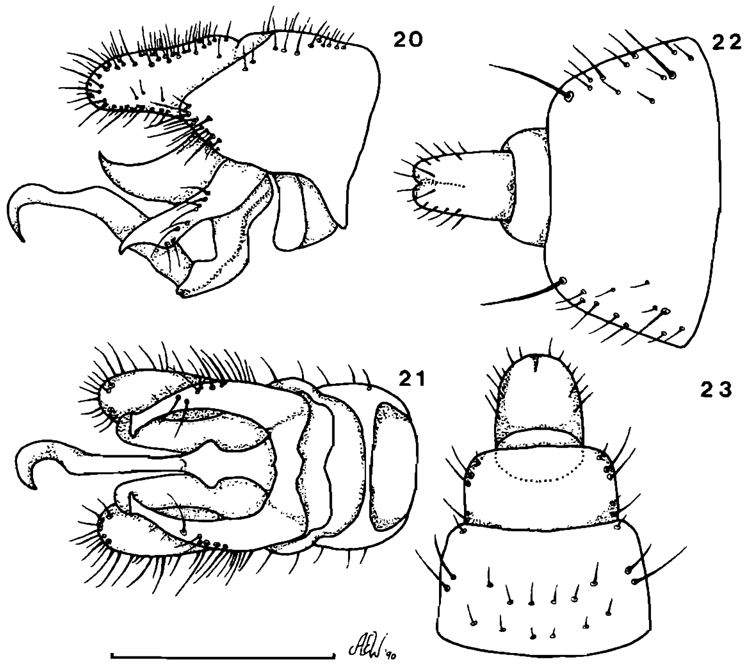


Figs 2–19. *Lonchoptera* species, fore, mid and hind left tibiae. 2–4. *Lonchoptera furcata* (Fallén). 5–7. *L. transvaalensis* Stuckenberg. 8–10. *L. vesperis* Stuckenberg. 11–13. *L. africana* Adams. 14–16. *L. rava* sp. n. 17–19. *L. ugandensis* sp. n. Scale = 0,5 mm.

ments 1 and 2 pale buff, each with apical crown of black setae, segment 3 and arista grey. Apical aristomere as long as first tarsomere of fore leg. Labella grey, palpus and prementum brown and sparsely covered with short, dark setae. Buccal cavity broadly obovate and surrounded by margin of stiff, black vibrissae. Eye bare, black. One pair each of following divergent, black macrosetae—lower frontals, ocellars, inner verticals. Postocellar setae short, pale; first pair convergent.

Thorax: Dark brown, but pale area over dorsocentral setae spreading laterally to basal postpronotal setae; covered in very fine silver pruinescence. Sternum paler than dorsum. Scutellum dark grey brown, raised at subacute angle, subscutellum buff, narrow; anatergite broad, dark grey. First presuteral dorsocentral (*dc*) situated anteriorly on pronotum directly behind median occipital sclerite; second and third presuteral *dc* shorter than first, 3 postsuteral *dc* better developed, longer than arista. Anterior macrosetae of postpronotum and anepisternum twice length of posterior ones; first notopleural macroseta little more than half length of second; 1 pair apical scutellar macrosetae; all macrosetae black. Legs pale buff, darkening slightly apically, covered with short black setae, except for bare coxae and inner basal hind femur. Black macrosetae on legs: fore coxa—1 median *d*, 2 poorly developed distal *v* and a row of 5 distal black macrosetae from *d* to *a*; fore femur—1 thin proximal *av*, 1 median *d*, 2 distal *d*, 1 each of distal *a, p, av* & *pv*; fore tibia (Fig. 14)—1 median *ad*, 1 median *pd*, 1 distal *d*, 1 distal *pv*; mid femur—1 median *a*, 1 each of distal *a, d, av* & *pv*; mid tibia (Fig. 15)—2 median *ad*, 1 median *pd*, 1 each of distal *av, d,* & *pv*; hind femur—1 median *ad*, 1 each of distal *d, p, a* & *v*; hind tibia (Fig. 16)—2 median *ad*, 1 median *d*, 2 median *av*, 1 distal *ad*, 1 distal *pd*, *pdr* not clearly discernable from posterior patch of setae; hind tarsomere 1—1 proximal *av*, 1 proximal *pv*, 1 distal *av*, 1 distal *pv*; hind tarsomere 2—distally 1 *av* & 1 *pv*. Wings dusky brown, veins with dorsal setae short, black, absent from Sc, R_{2+3}, R_s and base of M_1. Wing margin with dorsally and ventrally orientated fringes of black setae twice as long as setae on veins. Membrane covered dorsally by dense, fine microtrichia. Length of M_{1+2} to M_2 in ratio 1:2,32. Halter pale buff, about as long as apical aristomere; knob oblanceolate, twice as long as stem and base together.

Abdomen: Dark grey with fine silver pruinescence and short black setae. Genitalia (Figs 20–21) with prominent cerci with apical margin with well developed black setae, dorsally covered with fine pale setae. Epandrium with strong black



Figs 20–23. *Lonchoptera rava* sp. n. genitalia. 20 Holotype male lateral. 21. Holotype male ventral. 22. Paratype female dorsal. 23. Paratype female ventral. Scale = 0,25 mm.

setae along apical margin, finely setose dorsally. Aedeagus extending beyond cerci, distal potion membranous and hooked. Gonopod broadest medially, tapering distally and terminating bluntly, perpendicular to long axis. Four or more distinct setae before medial broadening and two after it directed ventrally. Paramere distally pointed and bent upwards in lateral view, rounded in ventral view.

Paratypes: 25 ♀ paratypes. Female similar to male, with following differences: fore coxa with distal *v* better developed; fore tibia with 1 median *pd* and 1 distal *ad*. Genitalia (Figs 22–23): tergite 8 half width of tergite 7 and sternite 8 half length of sternite 7; cerci large. Setae of tergite 7 few and restricted to margins; two distal macrosetae on posterior margin. Tergite 8 naked. Setae of sternite 7 not restricted to margins; sternite 8 with setae restricted to margins. Hypoproct naked.

Material examined: SOUTH AFRICA: *Natal*: ♂ holotype, 24 ♀ paratypes, Howick, 29°28′40″S:30°13′20″E, A. E. Whittington, Swept in stream-side vegetation, at house lights, in garden and at mercury vapour light traps between 10.vii.1990 and 7.ix.1990; 1 ♀ paratype, Darvill maturation Ponds, Pietermaritzburg, 29°33′0″S:30°20′11″E, 27.vi.1990, D. Barraclough, S. Chinn & A. E. Whittington. All NMSA (type number 958) save for pairs of female paratypes in each of BMNH, AMSA & AMNH.

Remarks: This species seems to be more closely related to *vesperis* Stuckenberg 1963 than is the latter to *africana* Adams 1905, although it was previously apparent that *vesperis* and *africana* formed a species-pair (Stuckenberg 1963). The genitalic structures in the males of *vesperis* and *rava* are almost identical, *rava* differing only in that the gonopod bears no terminal spine and has only four lateral setae; the aedeagus and the paramere are not bilobed as in *vesperis*. In comparison, *africana* has a prominent protrusion midway along the gonopod, which is absent from both *vesperis* and *rava*. The gonopod of *africana* is rounded at the end, while in the other two species it is bluntly ended. In lateral view the paramere of *vesperis* and of *rava* is pointed, that of *africana* is rounded.

L. rava can be distinguished from *vesperis* by the generally grey body colour, the arrangement of the tibial macrosetae (see key and Figs 8–10 and 14–15) and by the genitalic structures mentioned above. In body coloration and tibial bristling *rava* closely resembles *furcata*. In *rava* the mid tibia has ventral macrosetae distally only, while *furcata* has ventral macrosetae medially and distally. Positions of all other macrosetae are identical. The male genitalia are, however, quite distinct, the differences being: *furcata* has the aedeagus drawn out to a point and not apically recurved, the gonopod is rounded and not ending perpendicular to the long axis in ventral view, the parameres are not pointed in lateral view and the cerci are smaller and less elongate.

Lonchoptera ugandensis sp. n.

Figs 17–19, 24–27

Etymology: ugandensis—type series from Uganda.

Description: Based on holotype ♀ (Uganda, Namwamba Valley).

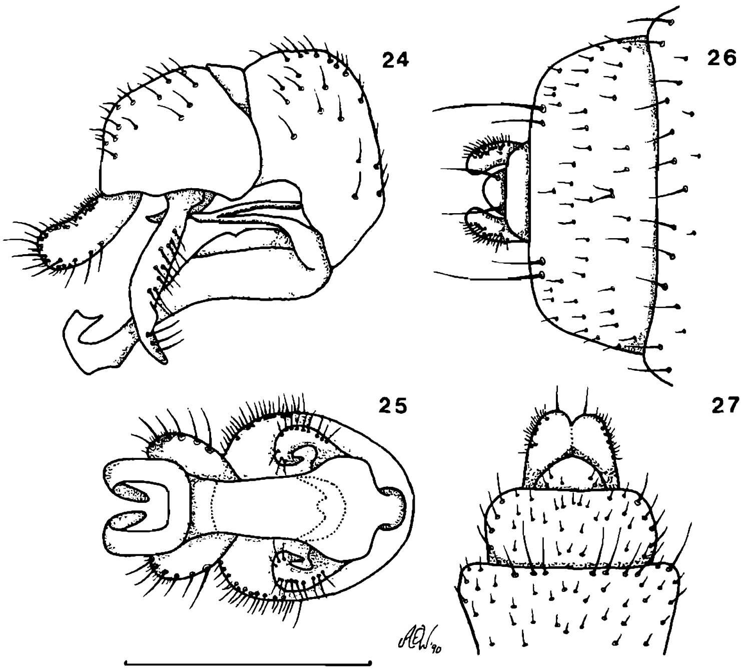
Body length: 2,77 mm (antennal base to abdominal apex).
Wing length: 4,13 mm.

Head: Pale buff, shiny. Antennal segments 1 and 2 pale buff, each with apical crown of black setae, segment 3 and arista pale brown. Apical aristomere five-sixths length of first tarsomere of fore leg. Labella brown, glossy, palpus and prementum pale brown to buff and sparsely covered with short, dark setae. Buccal cavity broadly obovate, surrounded by margin of stiff, black vibrissae. Eye bare, black. One pair each of following divergent, black macrosetae—lower frontals, ocellars, inner verticals. Postocellar setae short, pale; first pair convergent.

Thorax: Pale buff, with brown stripes over mid-line between dorsocentral setae and ventral edge of postpronotal lobe to wing base and from there to posterior spiracle. Scutellum and subscutellum buff, with median stripe brown. First presuteral dorsocentral (*dc*) situated anteriorly on pronotum directly behind median occipital sclerite; second presuteral *dc* same length as first, 3 postsuteral *dc* better developed, shorter that arista. Anterior macrosetae of postpronotum and anepisternum just less than twice length of posterior ones; first notopleural macroseta two thirds length of second; 1 pair of apical scutellar macrosetae; all macrosetae black. Legs pale buff, darkening slightly apically, covered with short black setae. Black macrosetae of legs: fore coxa—1 median *d*, 6 distal *d*; fore femur—1 proximal *v*, 1 each of median *d, a* & *v*, 1 each of distal *d, a, p, av, pd* & *pv*; fore tibia (Fig. 17)—1 median *d*, 1 median *pd*, 1 each of distal *pv, ad* & *pd*; mid femur—1 thin proximal *v*, 1 median *a*, 1 each of distal *a, av, pv* & *pd*; mid tibia (Fig. 18)—2 median *d*, 1 median *pd*, 1 median *av*, 1 each of distal *av, pv* & *d*; hind femur—1 median *ad*, 1 each of distal *a, av, ad, d* & *pv*; hind tibia (Fig. 19)—2 proximal *d*, 2 median *ad*, 1 median *pd*, 2 median *v*, 1 median *d* between lower median *ad* and distal *d*, distinct *pdr*, 1 distal *d* and 1 distal *pd*. Wings hyaline, veins brown with dorsal setae short and black, absent from R_{2+3} and base of *dm-cu*. Wing margin with dorsally and ventrally orientated fringes of black setae twice as long as setae on veins. Membrane covered dorsally and ventrally by dense, fine microtrichia. Halter pale buff, about three quarters apical aristomere; knob oblanceolate, twice as long as stem and base together.

Abdomen: Dark grey-brown with fine silver pruinescence and short black setae. Lateral margin of tergite 7 pale buff. Genitalia: (Figs 26–27) Tergite 7 three times as broad as tergite 8. Hypoproct much reduced, with few setae. Sternite 8 about half length of sternite 7. Erect macrosetae, posteriorly directed, arise from epiproct. Two posterior macrosetae on tergite 7 either side of cerci and a row of short macrosetae on posterior margin of tergite 6. Sternite 8 with row of strong lateral setae. Posterior margin of sternite 7 with row of macrosetae.

Paratypes: 1 ♂ paratype. Similar to female save for usual sexual dimorphism in wing venation, the M_{1+2} to M_2 ratio being 2,43. Genitalia (Figs 24–25): cerci reduced, apical margin with well developed black setae, dorsally covered with fine pale setae. Epandrium (*tg 9*) finely setose dorsally. Aedeagus with distal potion membranous and hooked upwards, bilobed apically. Gonopod broadest medially, tapering distally, bent back away from cerci, rounded and having a small ventral



Figs 24–27. *Lonchoptera ugandensis* sp. n. genitalia. 24. Paratype male lateral. 25. Paratype male ventral. 25. Holotype female dorsal. 26. Holotype female ventral. Scale = 0,5 mm.

bulge on underside shortly before apex, three distinct setae distal to bulge. Paramere distally pointed and bent upwards in lateral view, folded back in ventral view, much shorter than gonopod. ♀ paratype somewhat paler that holotype, having virtually no brown stripes on thorax and having a pale brown abdomen.

Material examined: UGANDA: ♀ holotype and ♂ paratype, Ruwenzori Range, xii.1934-i.1935, B. M. E. Afr. Exp., B.M. 1935–203, Namwamba Valley, 8300 ft., F. W. Edwards (BMNH); 1 ♀ paratype, Uganda, Kigezi Dist., xi.1934, B. M. E. Afr. Exp.,, B.M. 1935–203, Mt. Sabinio, 8 000 ft., F. W. Edwards (NMSA).

Remarks: *ugandensis* is dissimilar to other Afrotropical species. The bilobed structure of the aedeagus, although curving upwards, places *ugandensis* closest to *africana* and *vesperis*. In general body colour and shape of the gonopod it is more similar to *africana* than to *vesperis*. The length of M_2 in the male is large, resulting in a large M_{1+2} to M_2 ratio of 2,43, which further distinguishes this species.

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